

# You are part of the food chain

## Key facts and figures on the food supply chain in the European Union

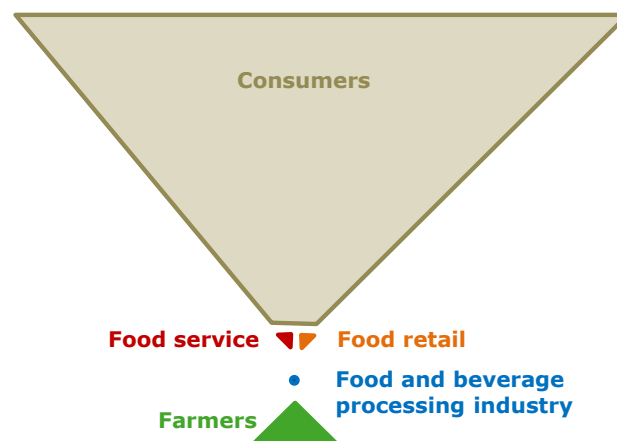
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Everyone takes part in the food chain. Even if you're not directly involved in the production, processing or distribution of food, you are part of the food chain as a consumer. Food reaches consumers either directly (the less common purchases from the farmer) or via a number of intermediaries. Activities such as the processing of raw agricultural commodities, checking consumer safety standards, packing or transport activities add value to food before it is sold. The food chain links all the market players involved in the production, processing and distribution of food to consumers.

The number of actors in the food chain varies greatly at each level. In the EU, around 12 million farms produce agricultural products for processing by about 300 000 enterprises in the food and drink industry. The food processors sell their products through the 2.8 million enterprises within the food distribution and food service industry, which deliver food to the EU's 500 million consumers.

*Synthetic and approximate representation of the food chain in the EU by actors involved\**



This *Brief* gives a picture of the food chain in the European Union, on the basis of Eurostat data, covering a description of:

- the food chain and its contribution to the economy,
- prices and price transmission in the food chain.

\* Where the number of holdings/enterprises per food chain stage and number of consumers are represented by the size of each shape.

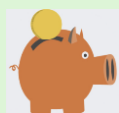
## 1. The EU food chain in a nutshell



Everyone is part in the food chain, be it as a producer of agricultural raw materials, food processor, seller of food products or as a consumer. Most food that arrives in store has been processed, packed, transported and has passed through the hands of a number of intermediaries, which added value to the final products.

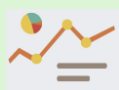


There are as many food chains as there are food products, depending on the characteristics of the final product. Food chains link consumers to farmers through direct sales (only about 2% of the fresh food market in volume terms), but mainly through modern retailers — supermarkets, hypermarkets and discounters— which account for 54% of the total edible grocery sales in the EU. In recent years the food sector has delivered more convenience foods and processed products<sup>1</sup> to consumers, stimulated by the change in lifestyle, urbanisation, consumer tastes and the general economic environment. Food intake per capita also rose over time, in particular in the developed world.



All food chains link the many actors involved from when raw materials are produced to when they are consumed, providing a variety of food to EU's 500 million consumers. Since people need to eat, a part of their income will always be spent on food. After a long term trend in which a decreasing share of the household budget has been spent on food, this share increased again during the commodity price boom of 2007-2008 and throughout the economic crisis, as incomes declined more than spending on food.

If the food chain is to function properly, then it needs to contribute to the economy in a sustainable way which also means that its actors need to be economically viable. For the EU economy, food production actors (agricultural producers and the food processing industry) jointly account for 7.5% of employment and 3.7% of EU's total value added. Nevertheless, the contribution of every link in the food chain to the economy and the pressures each has to face are different. With the biggest number of holdings and a large share of persons employed, agricultural production is more exposed than its counterparts within the chain to uncertainties linked to weather, production costs or price volatility.



Food prices have increased faster than overall inflation, in particular following the 2007-2008 commodity price spike and then the economic crisis. Closer analysis of the data also reveals several important issues. For example, agricultural price fluctuations are not proportionally transmitted to consumer prices. This is to be expected, as the cost of raw materials is only part of the total cost of food production. However, in some cases (e.g. the wheat to bread and the oils and fats food chains) prices have shown asymmetric price transmission. That means consumer prices appear to rise in line with agricultural price spikes but are sticky and often fail to follow suit when there is a downward price movement of raw materials. This leads to a steady and homogeneous increase in consumer prices.

Other factors, such as the existence of unfair trading practices in contractual relations, have an impact on the economic viability of those actors with weaker bargaining power in the food chain.

<sup>1</sup> The purchase of a considerable part of processed food in the EU (mainly fruit and vegetables, meat, seafood, dairy, pasta, etc.) which was at 164 kg/capita in 2000 rose to 171 kg/capita in 2014 (or a 4.2% growth in 2014 in comparison to year 2000), [Euromonitor passport](#), 2014.



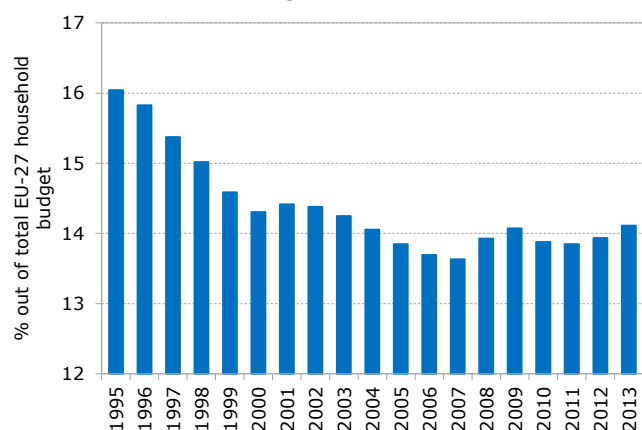
The functioning of the food chain is addressed within the new agricultural policy framework. The Common Agricultural Policy (CAP) helps farmers by providing financial incentives for enhanced cooperation through producer organisations, development of short supply chains and adding value to agricultural production. The CAP also provides other tools (intervention and crisis measures, risk management) which can help reduce the magnitude and exposure to price fluctuations. And last but not least the CAP provides farmers with direct payments which provide some income security.

## 2. How does the food chain affect my budget and the EU economy?

Disposable income and overall consumer spending in the EU have increased over the last decade, but registered a drop following the 2009 economic crisis. These indicators show that before 2009 the amount of disposable income that households had available and spending itself were on an upward trend in the EU.

At EU level, food and beverages spending (14% in 2013) is the second biggest expense of the household budget after housing (including water, electricity and fuels). But because overall consumer expenditure grew faster than food spending EU consumers are, generally, spending a smaller share of their budget on food. The reverse is true for periods of economic crises, in which incomes shrink and food and beverages expenditure takes a bigger share of the household budget.

**Graph 1 Food and beverages spending as % of EU-27 household budget**



Source: Eurostat, National Accounts ([nama\\_10\\_co3\\_p3](#)).

This overall evolution hides differences between EU Member States, in some of which the share of food spending remains high —Lithuania and Romania

(about 29%), Latvia and Estonia (around 26%), Bulgaria and Poland (about 21%)— in comparison to relatively smaller shares in the United Kingdom and Luxembourg (around 11%) or Austria, Ireland and Germany (about 12%) in 2013.

Because people need to eat, some part of the household budget will always be allocated to food purchases. Regardless of available resources, the share of the budget spent on food tends to stabilise, even in periods of increased incomes. In the United Kingdom for instance, 12.3% of household income was spent on food in 1995, which dropped to only about 11% in 2013. This slowly downward and stabilising trend is visible in other developed economies as well, such as the United States, for which data show that the share of food expenditure in disposable income decreased by only 2.6% during the last 30 years, reaching 10% in 2013.



But if buying food remains a constant of the household budget spending, what do food chains mean for the overall economy?

Food production alone (agriculture and the food processing industry<sup>2</sup>) provided for 7.5% of total employment in the EU and a gross value added<sup>3</sup> (GVA) of more than EUR 420 billion, which represented 3.7% of EU's total value added in 2011<sup>4</sup>.

In its turn, the food processing industry is the biggest branch of the EU industry, representing about 13% of total industrial GVA and about 15% of total employment in this economic sector in 2011.

<sup>2</sup> Food processing industry includes in this calculation beverages and tobacco.

<sup>3</sup> Gross value added is defined as production value minus intermediate consumption (inputs).

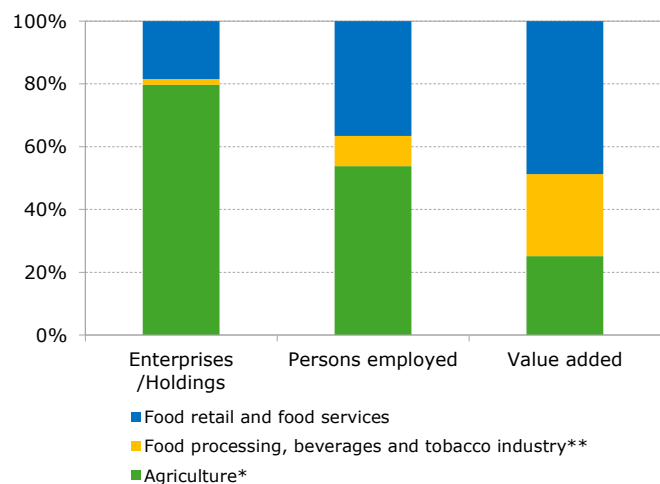
<sup>4</sup> For EU food wholesale, food retail as well as for the food service data is not available for this comparison.

Food chains are clearly important to the EU economy. This *Brief* looks at the contribution of the different actors<sup>5</sup> in the food chain, starting with the farmer. The food chain includes however a number of other actors not considered in this *Brief* (e.g. input industries upstream the farming stage, providers of innovation and technology etc.), which also play an important part in the global food value chain.

### 3. Who does what in the EU food supply chain?

The EU food chain employs more than 47 million persons<sup>6</sup> in more than 15 million holdings or enterprises engaged in agriculture, the food processing industry, food retail and food services.

**Graph 2 Contribution of the different stages of the food chain to the European economy, EU-28, 2012**



Sources: Eurostat, National Accounts ([nama\\_nace64\\_c](#)), Farm Structure Survey ([ef\\_kvaareg](#) and [ef\\_olfftecs](#)), Economic Accounts for Agriculture ([aact\\_eaa01](#)) and Structural Business Statistics ([sbs\\_na\\_sca\\_r2](#), [sbs\\_na\\_dt\\_r2](#) [sbs\\_na\\_dt\\_r2](#) and [sbs\\_na\\_1a\\_se\\_r2](#)).  
\* 2010 data for holdings and persons employed in agriculture.  
\*\* Estimated EU-28 total for 2012.

<sup>5</sup> In this *Brief* the actors of the food chain are *the farmers, the food processing industry* —which also includes beverages and tobacco processing where data is available, as specified within the text—, *the food retail* —which broadly denominates the distribution of food to consumers, either through wholesale or retail— and *the food service* —which includes food and beverage service activities, namely through restaurants, mobile food service and catering.

<sup>6</sup> In this *Brief*, the number of persons employed in agriculture corresponds to the definition used in the FSS: individuals which have carried out farm work on the holding during the 12 months up to the date of the 2010 census (25 million people for the EU-27). This figure is different when measured in full-time equivalent jobs (around 10 million annual working units). More information on employment in agriculture is provided in the Agricultural Economics *Brief* no 8 'How many people work in agriculture in the European Union?', published by the European Commission, DG for Agriculture and Rural Development, in July 2013.

The largest number of persons and businesses involved in the food chain are engaged in agriculture, which accounts for about 80% of all holdings and more than 50% of those employed in the food chain.

**Table 1 Enterprises/holdings, persons employed and value added in the EU-28 food chain, 2012**

2012	Enterprises /Holdings	Persons employed	Value added
	Million	Million	EUR million
<b>Total for EU-28</b>	<b>15.4</b>	<b>47.4</b>	<b>826 921</b>
Agriculture*	12.2	25.5	207 925
Food processing, beverages and tobacco industry**	0.3	4.6	216 184
Food retail and food services	2.8	17.3	402 811

Sources: See data sources of Graph 2.

\* 2010 data for holdings and persons employed in agriculture.

\*\* Estimated EU-28 total for 2012.



Out of the 15.4 million holdings/enterprises in the food chain, the majority are small or medium sized<sup>7</sup>. For agriculture, 69% of all farms in the EU-28 were smaller than 5 ha and only 2.7% were over 100 ha in 2010. The picture is the same for the overall industry and trade with 99% of all businesses in the EU classified as small or medium sized.



But if small businesses or enterprises characterise all stages of the food chain, concentration in the food processing industry and retail sectors is much higher than in the agricultural sector.

The market share of the top five firms (or C5 concentration ratio) in the EU food industry was at an average of 56% in 2012 in 14 of the EU's Member States<sup>8</sup>. At the same time, in 13 Member States the share of the top five retailers exceeded 60%<sup>9</sup>. These overall figures mask different evolutions in the EU Member States that were studied, with the top five suppliers representing from 43 to 69% of the national market, while the top five retailers represented from 20 to about 80% of the market in certain countries.

<sup>7</sup> Small enterprises employ up to 50 persons (full-time equivalent) and have a maximum yearly turnover of EUR 10 million; medium-sized enterprises employ up to 250 people (full-time equivalent) and have a maximum yearly turnover of EUR 50 million. Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprise (<http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:124:0036:0041:en:PDF>).

<sup>8</sup> Calculations based on the European Commission Report 'The economic impact of modern retail on choice and innovation in the EU food sector', 2014 (<http://ec.europa.eu/competition/publications/KD0214955ENN.pdf>).

<sup>9</sup> See European Commission Report mentioned in footnote 8.

As a land-based activity, agriculture is facing physical, logistical, economic and regulatory limits to concentration. At the EU level, the C5 concentration ratio in agriculture in 2010 accounted for 0.19%. At Member State level this ratio ranged from 0.4% in Germany to around 9% in Estonia.



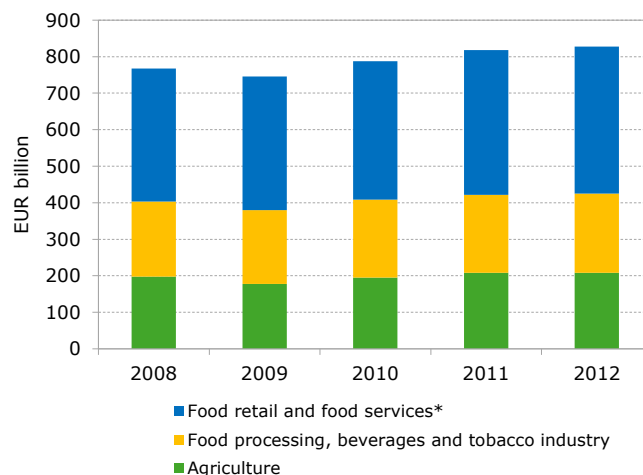
Concentration helps achieve economies of scale but also reduces the number of players downstream in the food chain, endowing them with higher bargaining power when negotiating with their counterparts. Higher bargaining power is not problematic in itself, but its abuse is at the basis of unfair trading practices in the food chain. In the long run, unfair practices result in undue costs or lower-than-expected revenues for those trading partners in the weaker bargaining position<sup>10</sup>.

Farmers tend to have weaker negotiating power in the food chain, although they are key players in the production of raw materials. Agricultural producers also face higher variability of prices for their inputs and for the products they sell, which makes their income more variable than that of other actors in the chain.

The CAP has been providing targeted support to modernise the EU agricultural production structure and enhance farmer cooperation. An example is the fruit and vegetables sector, for which 47% of the EU production value was marketed through producer organisations and their associations in 2012. Support through the CAP remains however confined to the facilitated recognition of these forms of farmer organisation and to the budget available for production structure modernisation under Rural Development.

While the largest number of businesses is involved in agriculture, the share of value added belonging to agriculture in the whole food chain remains at about 25%, with the exception of crisis year 2009 (Graph 3).

**Graph 3 Distribution of gross value added per food supply stage in the EU**



Sources: Eurostat, Economic Accounts for Agriculture ([aact\\_eaa01](#)) and Structural Business Statistics ([sbs\\_na\\_sca\\_r2](#), [sbs\\_na\\_dt\\_r2](#) and [sbs\\_na\\_1a\\_se\\_r2](#)).

\* EU-27 data for 2008-2010; EU-28 data for 2011-2012.

Following the increasing consumer demand for convenience products, the processing and the retail stages have added additional features and services to the basic agricultural product, thus expanding their total value added in the food chain. The value added of agriculture has not increased to the same extent as that of other food chain actors. Factors explaining this evolution are linked to increasing input costs due to competition for scarce resources as well as the limited possibilities for farmers to add value to the basic product or to get remunerated for it.

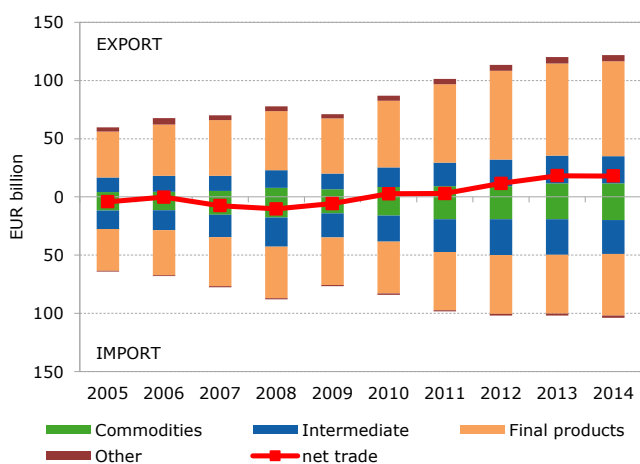
A 2009 European Commission analysis<sup>11</sup> explained that the evolution of output prices downstream the food chain increased more than input prices. In turn, farmers' input costs have increased faster than output prices (e.g. energy and fertilizer costs have increased from 9 to 12% in total production value over the last 14 years). To maintain their profitability in the light of increasing input costs, farmers need to increase their productivity and/or be able to transmit increases in input costs to other chain actors.

<sup>10</sup> Communication from the Commission to the European Parliament, the Council, the European Social and Economic Committee and the Committee of the Regions 'Tackling unfair trading practices in the business-to-business food supply chain', COM(2014) 472 final ([http://ec.europa.eu/internal\\_market/retail/docs/140715-communication\\_en.pdf](http://ec.europa.eu/internal_market/retail/docs/140715-communication_en.pdf)).

<sup>11</sup> Commission Staff Working Document 'The evolution of value-added repartition along the European food supply chain' accompanying the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 'A better functioning food supply chain in Europe', COM(2009) 591 ([http://ec.europa.eu/economy\\_finance/publications/publication16075\\_en.pdf](http://ec.europa.eu/economy_finance/publications/publication16075_en.pdf)).

Building on the diverse contribution of its actors, the EU food chain is playing an important role on the world market. The EU is increasingly trading agricultural raw materials and exporting processed food products. Its imports of agricultural commodities increased by more than 70% between 2005 and 2014, while exports of higher value-added products doubled over the same period (Graph 4).

**Graph 4 EU-28 trade in agriculture and food products**



Source: DG Agriculture and Rural Development based on data from Eurostat, [Comext](#).



The European Union is a key player on the world food market. EU's exports grew by nearly 6.3% per year from 2000-2013 yet its share of world food exports fell from about 18% to around 16%, as world trade grew faster. The increase in international trade and the resulting positive balance for the EU reflect the huge market opportunities that are available to farmers and the EU food industry.

#### 4. A look at prices

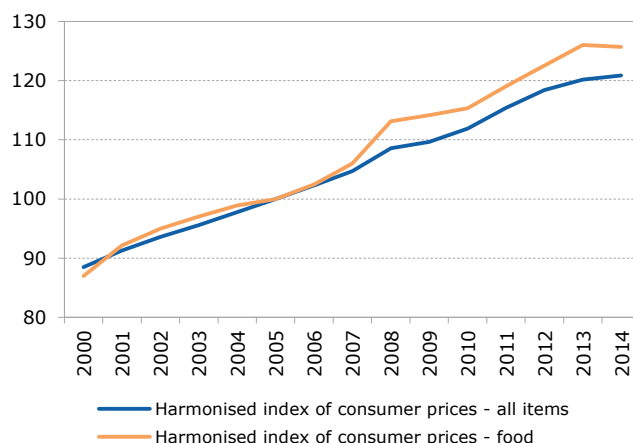
Though food represents a declining share of the household budget, since 2007 food prices grew faster than prices for other goods, driving up overall inflation.

Several factors contribute to this evolution: the increasing demand for food, the slowdown in productivity growth in agriculture (related to scarce natural resources and land) as well as increasing input prices, the growing link between agriculture and price trends in other commodities (e.g. energy), etc.

Despite the general increasing trend, inflation is affecting the various food chain actors differently. For instance, prices at farm level show much more

volatility than prices elsewhere in the food chain. In addition, extreme price fluctuations bring their toll on the economic viability of upstream food chain actors.

**Graph 5 Consumer price index for food and all items in the EU-28**



Source: Eurostat, Harmonised Index of Consumer prices ([prc\\_hicp\\_aind](#)).

Two more recent issues related to price transmission in the food chain are of concern: price volatility and asymmetric price transmission. In terms of price volatility<sup>12</sup> (price variation through time at every step of the food chain) for different food products, there would appear to be a clear smoothing effect downstream in the food chain. This is essentially caused by the fact that raw material represents only a small share of the cost of the final food product.



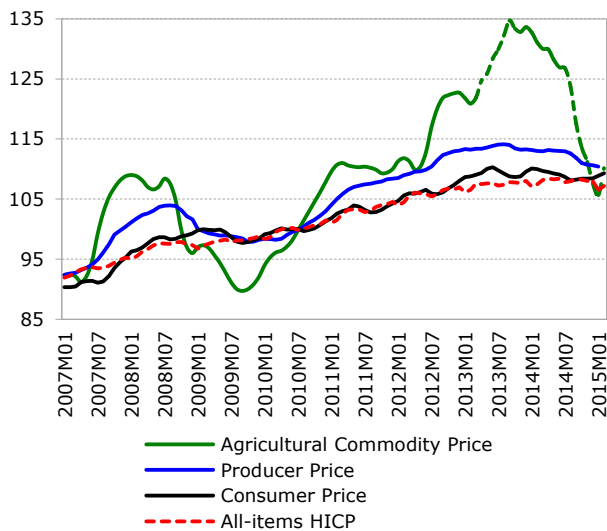
Consumer prices for certain products (e.g. wheat to bread and oils and fats food chains) tend to rise only slightly in response to raw material price increases, which should be good news for consumers. However when prices for raw materials fall, consumer prices tend to remain unaffected by this change. This phenomenon is known as asymmetric price transmission.

Available data for other chains (such as fruit and vegetables) is insufficient to draw a conclusion. More detailed information is being gathered through improvements of the Food Prices Monitoring Tool and price observatories in the EU Member States. This data should allow for further analysis on these price developments in the future.

<sup>12</sup> For more information on the sources of price volatility in the EU see [http://ec.europa.eu/agriculture/analysis/tradepoi/commodityprices/market-briefs/01\\_en.pdf](http://ec.europa.eu/agriculture/analysis/tradepoi/commodityprices/market-briefs/01_en.pdf).



**Graph 6 Food supply chain index for EU-28 (2007-2014)**



Source: Eurostat, [Food Prices Monitoring Tool \(prc\\_fsc\\_idx\)](#). From 2013, the Agricultural Commodity Price has been estimated by DG Agriculture and Rural Development based on [data](#) provided by the Member States.

## 5. Conclusions

Food chains link the many actors involved, from when raw materials are produced to when they are consumed by the EU's 500 million consumers. Although the share of spending on food in the total household budget has been decreasing overall, except during crises periods, the EU food chain remains important for the EU economy. Food production alone (agriculture and the food processing industry) provided for 7.5% of total employment and 3.7% of EU's total value added (in 2011).

If food distribution is included, the EU food chain employs more than 47 million persons in more than 15 million holdings or enterprises (mostly small and medium sized) engaged in agriculture, the food processing industry, food retail and food services. The largest number of persons and businesses involved in the food chain are engaged in agriculture, which accounts for about 80% of all holdings and more than

50% of those employed (even on a part time basis) in the food chain.

Different stages in the food chain are subject to different kinds of pressure. Agriculture is characterised by a fairly unstable and limited share of value added in the food chain, due to rising input costs as well as inherent variation in production linked to weather or disease. Agricultural product prices are also more volatile than prices downstream in the food chain. In addition, certain food chain prices have shown asymmetric price transmission: consumer prices seem to rise in line with agricultural price spikes but fail to follow downward price movements of raw materials. This leads to a steady and homogeneous increase in consumer prices.

Concentration in the food processing industry and retail sectors is higher than in the agricultural sector, endowing downstream actors with higher bargaining power. Though this development is not problematic in itself, the abuse of bargaining power is at the basis of unfair trading practices in the food chain. This is a reality confirmed by all stakeholders under the High Level Forum for a Better Functioning Food Supply Chain, who acknowledged the existence of unfair practices. As a result, representatives from across the food chain agreed on a list of principles of good practice in contractual relations, while part of the food chain (the food industry and food distribution) has engaged in a voluntary scheme for the implementation of these principles.

The new CAP has paid special attention to improving the functioning of the food chain by encouraging producer cooperation. The new legal framework for producer organisations and their associations in all sectors is complemented by financial support for setting up of such groups and by mechanisms to support short supply chains. With these new measures, the EU wants to strengthen the bargaining power of farmers and improve the distribution of the value added generated by the supply chain.

Farm icons: ©Thinkstock

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Contact: DG Agriculture and Rural Development, Unit Agricultural Modelling and Outlook

Tel: +32-2-29 91111 / E-mail: [Agri-E2@ec.europa.eu](mailto:Agri-E2@ec.europa.eu)

[http://ec.europa.eu/agriculture/markets-and-prices/index\\_en.htm](http://ec.europa.eu/agriculture/markets-and-prices/index_en.htm)

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